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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
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ART UNIT	**PAPER NUMBER**
1753	

DATE MAILED: 01/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/796,470	Applicant(s) SHIH ET AL.	
	Examiner Edna Wong	Art Unit 1753	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-20 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-20 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Specification

The disclosure is objected to because of the following informalities:

page 15, line 13, "S1" should be amended to -- 51 --.

page 15, line 19, "S2" should be amended to -- 52 --.

page 16, line 4, "S3" should be amended to -- 53 --.

page 16, line 4, the words -- (not shown) -- should be inserted after the number "25".

page 16, line 11, "S4" should be amended to -- 54 --.

page 16, line 17, line 1, "S5" should be amended to -- 55 --.

Appropriate correction is required.

The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Objections

Claims **1 and 13** are objected to because of the following informalities:

Claim 1

line 4, the word "providing" should be amended to the word -- provided --.

Claim 13

line 4, the word "providing" should be amended to the word -- provided --.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Quimby

Electrolyte

I. Claims **1-4 and 9-10** are rejected under 35 U.S.C. 102(b) as being anticipated by **Quimby** (US Patent No. 3,554,884).

Quimby teaches an electrolyte, comprising:

(a) an electrolyte solution (= an electrolyte); and

(b) a copolymer comprising ethylene oxide and propylene oxide providing in said electrolyte solution (= block copolymers of propylene and ethylene oxides) [col. 3, lines 31-62].

The copolymer is a block copolymer (= block copolymers of propylene and ethylene oxides) [col. 3, lines 31-62].

The ethylene oxide is present in said copolymer in a quantity of at least about 60% by weight (= Pluronic F-68 = an ethenoxy content in the final solid, water-soluble copolymer of about 80%) [col. 3, lines 43-62].

The copolymer is present in said electrolyte solution in a concentration of from about 50 ppm to about 500 ppm (= about 40-600 mg/l) [col. 2, lines 20-21].

The ethylene oxide is present in said copolymer in a quantity of about 80% by weight and said propylene oxide is present in said copolymer in a quantity of about 20% by weight (= Pluronic F-68 = an ethenoxy content in the final solid, water-soluble copolymer of about 80%) [col. 3, lines 43-62].

As to the claim limitation of “for copper electroplating”, as recited in claim 1, this claim limitation is not a component of the electrolyte, and thus, does not compositionally distinguish the electrolyte from the prior art.

Since Quimby teaches all of the limitations recited in the instant claims, the reference is deemed to be anticipatory.

II. Claims **13-16** are rejected under 35 U.S.C. 102(b) as being anticipated by **Quimby** (US Patent No. 3,554,884).

Quimby teaches an electrolyte, comprising:

(a) an electrolyte solution (= an electrolyte);

(b) a copolymer comprising ethylene oxide and propylene oxide providing in said electrolyte solution (= block copolymers of propylene and ethylene oxides) [col. 3, lines 31-62]; and

(c) a leveling agent provided in said electrolyte solution (= a lignosulfonate) [col. 1, line 61 to col. 2, line 11; and col. 2, lines 21-24].

The copolymer is a block copolymer, a random copolymer or an alternating copolymer (= block copolymers of propylene and ethylene oxides) [col. 3, lines 31-62].

The ethylene oxide is present in said copolymer in a quantity of at least about 60% by weight (= Pluronic F-68 = an ethenoxy content in the final solid, water-soluble copolymer of about 80%) [col. 3, lines 43-62].

The copolymer is present in said electrolyte solution in a concentration of from about 50 ppm to about 500 ppm (= about 40-600 mg/l) [col. 2, lines 20-21].

As to the claim limitation of "for copper electroplating", as recited in claim 13, this claim limitation is not a component of the electrolyte, and thus, does not compositionally distinguish the electrolyte from the prior art.

Since Quimby teaches all of the limitations recited in the instant claims, the reference is deemed to be anticipatory.

Method

III. Claims **17-20** are rejected under 35 U.S.C. 102(b) as being anticipated by **Quimby** (US Patent No. 3,554,884).

Quimby is as applied for reasons as discussed above.

Quimby also teaches a method of electroplating a metal (= lead) on an electroplating surface (= a lead cathode), comprising the steps of:

(a) providing an electroplating bath solution (= an electrolyte);

(b) mixing a copolymer comprising ethylene oxide and propylene oxide with said solution (col. 4, lines 27-58) in a concentration of from about 50 ppm to about 500 ppm (= about 40-600 mg/l) [col. 2, lines 20-21];

(c) immersing said electroplating surface in said solution (= holders for the lead anodes and cathodes) [col. 4, lines 11-15]; and

(d) electroplating (= 17 A/ft^2) said metal (= lead) onto said electroplating surface (col. 4, Examples 1-6).

Since Quimby teaches all of the limitations recited in the instant claims, the reference is deemed to be anticipatory.

Barstad

Electrolyte

IV. Claims **1-2 and 4** are rejected under 35 U.S.C. 102(b) as being anticipated by **Barstad et al.** (US Patent No. 6,444,110 B2) in combination with **BASF Technical Bulletin** ("Pluronic L62D Block Copolymer Surfactant", page 1, © 2002).

Barstad teaches an electrolyte for copper electroplating, comprising:

(a) an electrolyte solution (col. 8, lines 50-58); and

(b) a copolymer comprising ethylene oxide and propylene oxide providing in said electrolyte solution (= a propylene glycol copolymer sold under the tradename L62D by BASF) [col. 8, lines 46-48].

The copolymer is a block copolymer (= Pluronic L62D Block Copolymer Surfactant) [BASF Technical Bulletin, page 1].

The copolymer is present in said electrolyte solution in a concentration of from about 50 ppm to about 500 ppm (= from about 1 to 10,000 ppm) [col. 6, lines 59-62].

As to the claim limitation of "for copper electroplating", as recited in claim 1, this claim limitation is not a component of the electrolyte, and thus, does not compositionally distinguish the electrolyte from the prior art.

Since Barstad teaches all of the limitations recited in the instant claims, the reference is deemed to be anticipatory.

V. Claims **13-14 and 16** are rejected under 35 U.S.C. 102(b) as being anticipated by **Barstad et al.** (US Patent No. 6,444,110 B2) in combination with **BASF Technical Bulletin** ("Pluronic L62D Block Copolymer Surfactant", page 1, © 2002).

Barstad teaches an electrolyte for copper electroplating, comprising:

(a) an electrolyte solution (col. 8, lines 50-58); and

(b) a copolymer comprising ethylene oxide and propylene oxide providing in said electrolyte solution (= a propylene glycol copolymer sold under the tradename L62D by BASF) [col. 8, lines 46-48]; and

(c) a leveling agent provided in said electrolyte solution (col. 6, line 63 to col. 7, line 19).

The copolymer is a block copolymer, a random copolymer or an alternating copolymer (= Pluronic L62D Block Copolymer Surfactant) [BASF Technical Bulletin, page 1].

The copolymer is present in said electrolyte solution in a concentration of from about 50 ppm to about 500 ppm (= from about 1 to 10,000 ppm) [col. 6, lines 59-62].

As to the claim limitation of "for copper electroplating", as recited in claim 13, this claim limitation is not a component of the electrolyte, and thus, does not compositionally distinguish the electrolyte from the prior art.

Since Barstad teaches all of the limitations recited in the instant claims, the

reference is deemed to be anticipatory.

Method

VI. Claims **17 and 18** are rejected under 35 U.S.C. 102(b) as being anticipated by **Barstad et al.** (US Patent No. 6,444,110 B2) in combination with **BASF Technical Bulletin** ("Pluronic L62D Block Copolymer Surfactant", page 1, © 2002).

Barstad and BASF Technical Bulletin are as applied for reasons as discussed above.

Barstad also teaches a method of electroplating a metal on an electroplating surface, comprising the steps of:

(a) providing an electroplating bath solution (col. 8, lines 50-58);

(b) mixing (= admixing) [col. 8, lines 43-48] a copolymer comprising ethylene oxide and propylene oxide (= a propylene glycol copolymer sold under the tradename L62D by BASF) [col. 8, lines 46-48] with said solution in a concentration of from about 50 ppm to about 500 ppm (= from about 1 to 10,000 ppm) [col. 6, lines 59-62];

(c) immersing said electroplating surface in said solution (col. 8, Example 2); and

(d) electroplating (14.5 mA/cm^2) said metal onto said electroplating surface (col. 8, Example 2).

The copolymer is a block copolymer, a random copolymer or an alternating copolymer (= Pluronic L62D Block Copolymer Surfactant) [BASF Technical Bulletin, page 1].

Since Barstad teaches all of the limitations recited in the instant claims, the reference is deemed to be anticipatory.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Quimby

Electrolyte

I. Claims **5-8 and 11-12** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Quimby** (US Patent No. 3,554,884) as applied to claims 1-4 and 9-10 above.

Quimby is as applied above and incorporated herein.

The electrolyte of Quimby differs from the instant invention because Quimby does not disclose the following:

a. Wherein said copolymer is a random copolymer, as recited in claims 5 and 11.

b. Wherein said copolymer is an alternating copolymer, as recited in claims 7 and 12.

The invention as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the copolymer described by

Quimby with wherein said copolymer is a random copolymer and wherein said copolymer is an alternating copolymer because structural relationships may provide the requisite motivation or suggestion to modify known compounds to obtain new compounds. For example, a prior art compound may suggest its homologs because homologs often have similar properties and therefore chemists of ordinary skill would ordinarily contemplate making them to try to obtain compounds with improved properties (MPEP § 2144.08(II)(A)(4)(c)).

Barstad

Electrolyte

II. Claims **3 and 5-12** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Barstad et al.** (US Patent No. 6,444,110 B2) in combination with **BASF Technical Bulletin** ("Pluronic L62D Block Copolymer Surfactant", page 1, © 2002) as applied to claims 1-2 and 4 above, and further in view of **BASF** ("Surfactants: Pluronic & Tetronic", pp. 1-37, © 1999).

Barstad and BASF Technical Bulletin is as applied above and incorporated herein.

The electrolyte of Barstad differs from the instant invention because Barstad does not disclose the following:

a. Wherein said ethylene oxide is present in said copolymer in a quantity of at least about 60% by weight, as recited in claims 3 and 6.

b. Wherein said ethylene oxide is present in said copolymer in a quantity of about 80% by weight and said propylene oxide is present in said copolymer in a quantity of about 20% by weight, as recited in claim 9.

Like Barstad and BASF Technical Bulletin, BASF teaches *Pluronic L62D*. BASF teaches that Pluronic surfactants constitute from 10% to 80% by weight of ethylene oxide in the final molecule (page 2; pages 21-22; and Fig. 18A).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the quantity of ethylene oxide in the copolymer described by Barstad and BASF Technical Bulletin with wherein said ethylene oxide is present in said copolymer in a quantity of at least about 60% by weight; and wherein said ethylene oxide is present in said copolymer in a quantity of about 80% by weight and said propylene oxide is present in said copolymer in a quantity of about 20% by weight because the quantity of ethylene oxide in the copolymer is a result-effective variable and one skilled in the art has the skill to calculate the quantity of ethylene oxide in the copolymer that would have determined the success of the desired reaction to occur, e.g., achieving the best wetting (see BASF: page 2; pages 21-22; and *Fig. 18A*), absent evidence to the contrary. MPEP § 2141.03 and § 2144.05(II)(B).

c. Wherein said copolymer is a random copolymer, as recited in claims 5 and 11.

d. Wherein said copolymer is an alternating copolymer, as recited in claims 7

and 12.

The invention as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the copolymer described by Barstad with wherein said copolymer is a random copolymer and wherein said copolymer is an alternating copolymer because structural relationships may provide the requisite motivation or suggestion to modify known compounds to obtain new compounds. For example, a prior art compound may suggest its homologs because homologs often have similar properties and therefore chemists of ordinary skill would ordinarily contemplate making them to try to obtain compounds with improved properties (MPEP § 2144.08(II)(A)(4)(c)).

III. Claim **15** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Barstad et al.** (US Patent No. 6,444,110 B2) in combination with **BASF Technical Bulletin** ("Pluronic L62D Block Copolymer Surfactant", page 1, © 2002) as applied to claims 13-14 and 16 above, and further in view of **BASF** ("Surfactants: Pluronic & Tetronic", pp. 1-37, © 1999).

Barstad and BASF Technical Bulletin is as applied above and incorporated herein.

The electrolyte of Barstad differs from the instant invention because Barstad does not disclose wherein said ethylene oxide is present in said copolymer in a quantity of at least about 60% by weight.

Like Barstad and BASF Technical Bulletin, BASF teaches *Pluronic L62D*. BASF teaches that Pluronic surfactants constitute from 10% to 80% by weight ethylene oxide of the final molecule (page 2; pages 21-22; and Fig. 18A).

The invention as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the quantity of ethylene oxide described by Barstad and BASF Technical Bulletin with wherein said ethylene oxide is present in said copolymer in a quantity of at least about 60% by weight because the quantity of ethylene oxide in the copolymer is a result-effective variable and one skilled in the art has the skill to calculate the quantity of ethylene oxide in the copolymer that would have determined the success of the desired reaction to occur, e.g., achieving the best wetting (see BASF: page 2; pages 21-22; and *Fig. 18A*), absent evidence to the contrary. MPEP § 2141.03 and § 2144.05(II)(B).

Method

IV. Claims **19 and 20** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Barstad et al.** (US Patent No. 6,444,110 B2) in combination with **BASF Technical Bulletin** ("Pluronic L62D Block Copolymer Surfactant", page 1, © 2002) as applied to claims 17 and 18 above, and further in view of **BASF** ("Surfactants: Pluronic & Tetronic", pp. 1-37, © 1999).

Barstad and BASF Technical Bulletin is as applied above and incorporated herein.

The method of Barstad differs from the instant invention because Barstad does not disclose the following:

a. Wherein said ethylene oxide is present in said copolymer in a quantity of at least about 60% by weight, as recited in claim 19.

b. Wherein said ethylene oxide is present in said copolymer in a quantity of about 80% by weight and said propylene oxide is present in said copolymer in a quantity of about 20% by weight, as recited in claim 20.

Like Barstad and BASF Technical Bulletin, BASF teaches *Pluronic L62D*. BASF teaches that Pluronic surfactants constitute from 10% to 80% by weight ethylene oxide of the final molecule (page 2; pages 21-22; and Fig. 18A).

The invention as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the quantity of ethylene oxide described by Barstad and BASF Technical Bulletin with wherein said ethylene oxide is present in said copolymer in a quantity of at least about 60% by weight and wherein said ethylene oxide is present in said copolymer in a quantity of about 80% by weight and said propylene oxide is present in said copolymer in a quantity of about 20% by weight because the quantity of ethylene oxide in the copolymer is a result-effective variable and one skilled in the art has the skill to calculate the quantity of ethylene oxide in the copolymer that would have determined the success of the desired reaction to occur, e.g., achieving the best wetting (see BASF: page 2; pages 21-22; and *Fig. 18A*), absent evidence to the contrary. MPEP § 2141.03 and § 2144.05(II)(B).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edna Wong whose telephone number is (571) 272-1349. The examiner can normally be reached on Mon-Fri 7:30 am to 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on (571) 272-1342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Edna Wong
Edna Wong
Primary Examiner
Art Unit 1753

EW
January 9, 2006